

CCSS Annual Investigators' Meeting
Memphis, TN
June 12 – 13, 2013

Psychology Working Group

Kevin R. Krull, PhD

Psychology Advisory Group

- Kevin Krull: Neuropsychologist; St. Jude
- Pim Brouwers: Neuropsychologist; NIMH
- Kim Edelstein: Neuropsychologist; Princess Margaret Hospital
- Jordan Gilleland: Psychologist; Aflac Cancer Center, Emory
- Kristina Hardy: Psychologist; Children's National Medical Center
- Nina Kadan-Lottick: Oncologist; Yale
- Jin-shei Lai: Psychometrician; Lurie Cancer Center, Northwestern
- M. Fatih Okcu: Oncologist; Texas Children's Cancer Center, Baylor
- Christopher Recklitis: Psychologist; Dana Farber Cancer Center

Objectives

- Review recent research findings
- Summarize ongoing projects
- Discuss new high priority concepts

Manuscripts Recently Published

Scarring, Disfigurement, and Quality of Life in Long-Term Survivors of Childhood Cancer: A Report From the Childhood Cancer Survivor Study

Karen E. Kinahan, Lisa K. Sharp, Kristy Seidel, Wendy Leisenring, Aarati Didwania, Mario E. Lacouture, Marilyn Stovall, Anand Haryana, Leslie L. Robison, and Kevin R. Krull

Neuro-Oncology 14(8):1018–1025, 2012.
doi:10.1093/neuonc/nos123

Antioxidant enzyme polymorphisms and neuropsychological outcomes in medulloblastoma survivors: a report from the Childhood Cancer Survivor Study

Julienne Brackett, Kevin R. Krull, Michael E. Scheurer, Wei Liu, Deo Kumar Srivastava,
Marilyn Stovall, Thomas E. Merchant, Roger J. Packer, Leslie L. Robison,
and M. Fatih Okcu

J Cancer Surviv (2013) 7:104–114

DOI 10.1007/s11764-012-0250-x

Prevalence and predictors of prescription psychoactive medication use in adult survivors of childhood cancer: a report from the Childhood Cancer Survivor Study

Tara M. Brinkman • Nicole J. Ullrich • Nan Zhang •
Daniel M. Green • Lonnie K. Zeltzer •
Karen M. Lommel • Pim Brouwers •
Deo Kumar Srivastava • Neelam Jain •
Leslie L. Robison • Kevin R. Krull

Psychoactive Medication Use and Neurocognitive Function in Adult Survivors of Childhood Cancer: A Report From the Childhood Cancer Survivor Study

**Tara M. Brinkman, PhD,^{1*} Nan Zhang, MS,² Nicole J. Ullrich, MD, PhD,³ Pim Brouwers, PhD,⁴ Daniel M. Green, MD,¹
Deo Kumar Srivastava, PhD,² Lonnie K. Zeltzer, MD,⁵ Marilyn Stovall, PhD,⁶
Leslie L. Robison, PhD,¹ and Kevin R. Krull, PhD¹**

Radiation, Atherosclerotic Risk Factors, and Stroke Risk in Survivors of Pediatric Cancer: A Report From the Childhood Cancer Survivor Study

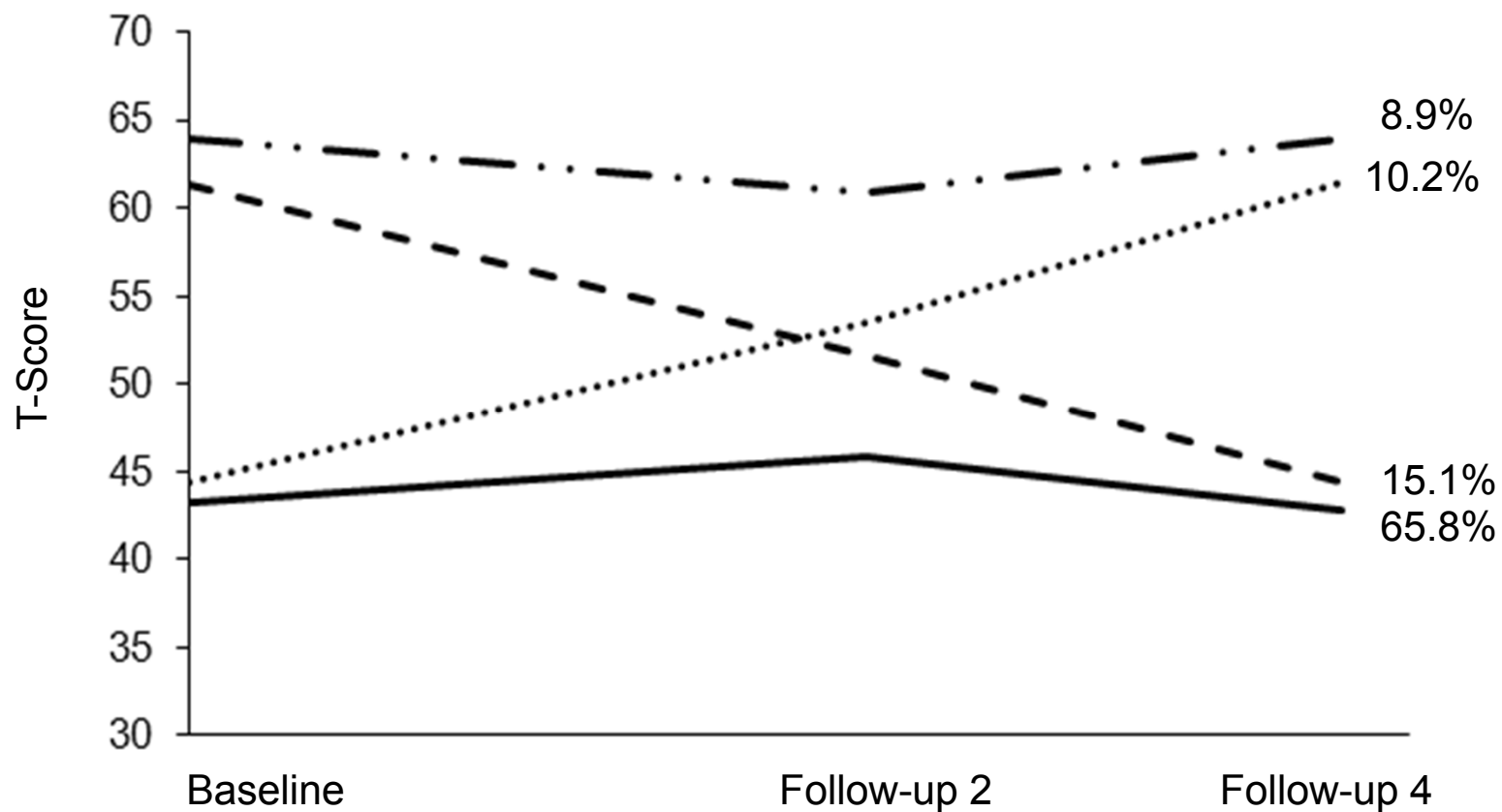
Sabine Mueller, MD, PhD,^{*} Heather J. Fullerton, MD, MAS,[†] Kayla Stratton, MS,[§]
Wendy Leisenring, ScD,[§] Rita E. Weathers, MS,^{||} Marilyn Stovall, PhD,^{||}
Gregory T. Armstrong, MD,[¶] Robert E. Goldsby, MD,[‡] Roger J. Packer, MD,[#]
Charles A. Sklar, MD,^{**} Daniel C. Bowers, MD,^{††} Leslie L. Robison, PhD,[¶]
and Kevin R. Krull, PhD[¶]

Manuscripts Recently Completed

Longitudinal Patterns of Psychological Distress in Adult Survivors of Childhood Cancer

Tara M. Brinkman, Liang Zhu, Lonnie K. Zeltzer,
Christopher J. Recklitis, Cara Kimberg, Nan Zhang,
Anna C. Muriel, Marilyn Stovall, Deo Kumar Srivastava,
Leslie L. Robison, Kevin R. Krull

Longitudinal Depression



Suicide Ideation and Associated Mortality in Adult Survivors of Childhood Cancer: A Report from the Childhood Cancer Survivor Study

Tara M. Brinkman, Nan Zhang, Christopher J. Recklitis,
Cara Kimberg, Lonnie K. Zeltzer, Anna C. Muriel, Marilyn Stovall,
Deo Kumar Srivastava, Charles A. Sklar,
Leslie L. Robison, Kevin R. Krull

Summary:

- Survivors more likely to report late onset (OR 1.9) and recurrent (OR 2.6) ideation

Examining Relations between Posttraumatic Growth and Posttraumatic Stress in Long-Term Survivors of Childhood Cancer

James Klosky, Kevin Krull, Toana Kawashima, Wendy Leisenring,
Mary Randolph-Frye, Brad Zebrack, Margaret Stuber,
Leslie Robison, Sean Phipps

Summary:

- Although similar factors predict PTSD and PTG, weakly associated with each other ($r = 0.09$).

Psychological and Neurocognitive outcomes in survivors diagnosed with cancer as adolescents and young adults: A Report from the Childhood Cancer Survivor Study

Pinki Prasad, Kristina Hardy, Nan Zhang, Deo Kumar Srivastava, Kim Edelstein, Lonnie Zeltzer, Marilyn Stovall, Wendy Leisenring, Nita Seibel, Gregory Armstrong, Leslie Robison, Kevin Krull

Summary:

- Among survivors with CNS tx, those dx during early AYA having fewer memory problems than those dx when older (11-15 vs 16-21 yrs, OR 0.69)

Physical Activity and Psychological Functioning Among Teenage Survivors of Childhood Cancers

Katie Devine, Ann Mertens, John Whitton, Wendy Leisenring, Kirsten Ness, Carmen Wilson, Kevin Oeffinger, Greg Armstrong, Leslie L. Robison, Kevin R. Krull

Summary:

- Adolescent self-esteem (OR 1.8) and healthy diet (OR 1.8) associated with future adult physical activity
- Adolescent family involvement (OR 2.9) and fewer TV hours (OR 0.5) associated with future adult obesity

Predictors of future health-related quality of life in survivors of adolescent cancer

Vikki G. Nolan, Kevin R. Krull, Paul C. Nathan, James G. Gurney, Nina Kadan-Lottick, Wendy Leisenring, Gregory T. Armstrong, Melissa M. Hudson, Leslie L. Robison, Kirsten K. Ness

Summary:

- Poor mental HRQOL predicted by scarring of head/neck (OR 1.7) and arms/leg (OR 1.4)
- Poor physical HRQOL predicted by obesity (OR 2.2), alkylating agents (OR 1.4), radiation to pelvis (OR 1.5) and scarring of head/neck (OR 1.5), arms/legs (OR 1.4)

Recurrent Stroke in Childhood Cancer Survivors

Heather Fullerton, Kayla Stratton, Wendy Leisenring, Sabine Mueller,
Rita Weathers, Marilyn Stovall, Gregory Armstrong, Robert Goldsby,
Roger Packer, Charles Sklar, Daniel Bowers,
Leslie Robison, Kevin Krull

Summary:

- Among 271 survivors with 1st stroke, 52 had a 2nd stroke occurring ≥ 5 years after cancer diagnosis (HR 3.2)
- Predictors of 2nd stroke include CRT dose, age at diagnosis, hypertension

Approved Concepts in Progress

Psychosocial and physical factors influencing fatigue in survivors of childhood Hodgkin Lymphoma

Amanda Rach (University of Memphis)

Aim:

- To investigate the association between pain, emotional distress, and physical functioning on levels of fatigue in survivors of childhood Hodgkin Lymphoma

Identifying Longitudinal Predictors of Quality of Life in Adolescent Survivors of Pediatric Cancer

Claire Russell (Virginia Commonwealth U)

Aim:

- To identify associations between child behavior at Baseline and future adolescent quality of life

Health-Related Locus of Control in Childhood Cancer Survivors

Cara Kimberg (St. Jude)

Aims:

- To characterize the locus of control styles (internal, powerful others/external, chance external) demonstrated by childhood cancer survivors
- To examine the impact of locus of control style on health behaviors and adherence to recommended healthcare utilization

Longitudinal Patterns of Late Effects in Adult Survivors of Childhood Brain Tumors

Thomas Hardie (Drexel/CHOP)

Aims

- To identify longitudinal patterns of psychosocial outcomes (education, employment, marriage and income) in adult survivors of CNS tumors
- To examine the associations with psychological/neuropsychological late effects

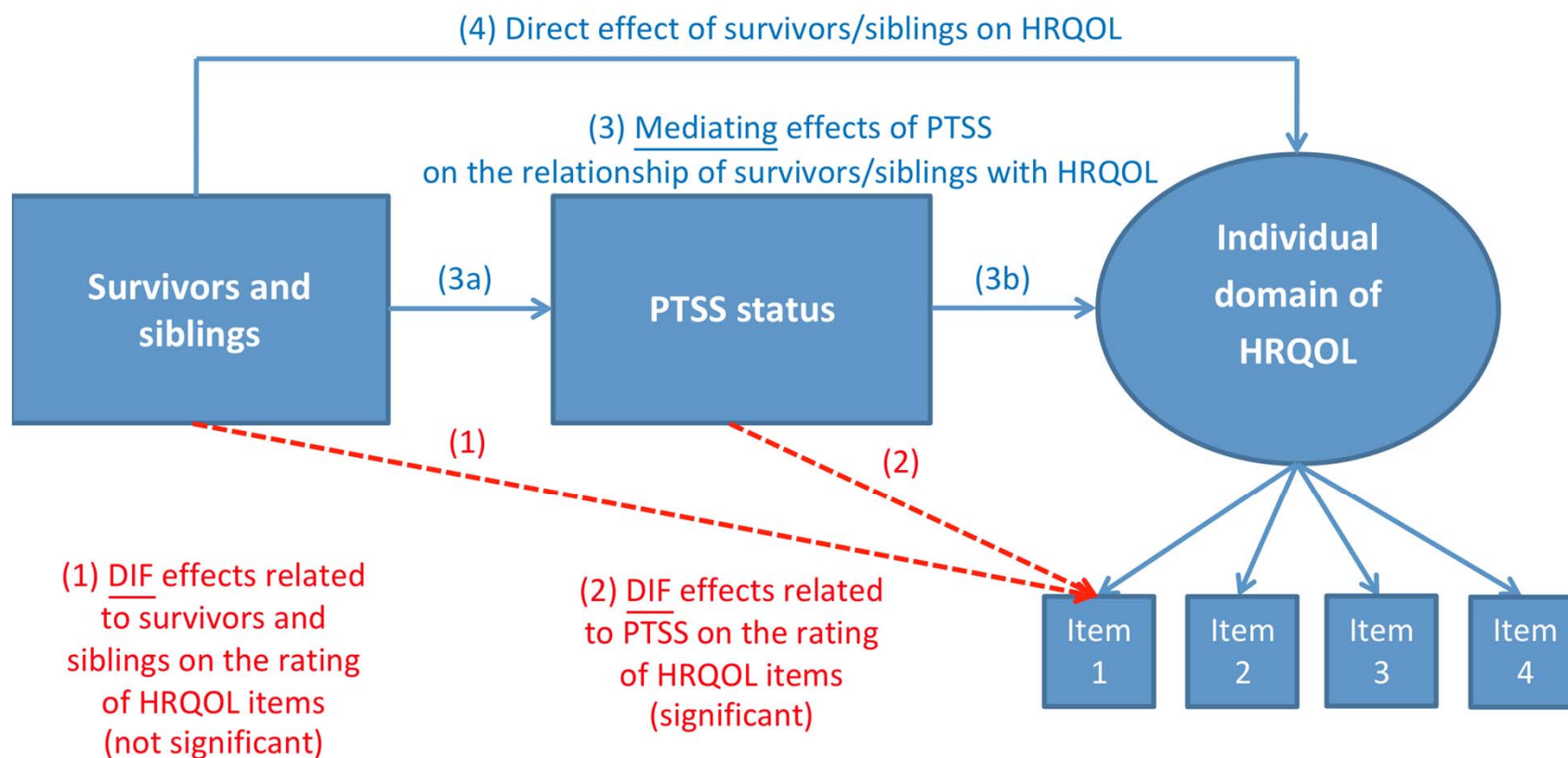
Measurement invariance in health-related quality of life between young adult survivors of childhood cancer and their siblings

I-Chan Huang (U Florida)

Aims:

- To test differential item function (DIF) between survivors and siblings on each domain of the SF-36
- To test DIF between high and low perceived stress and impact

PTSD and perceived HRQOL



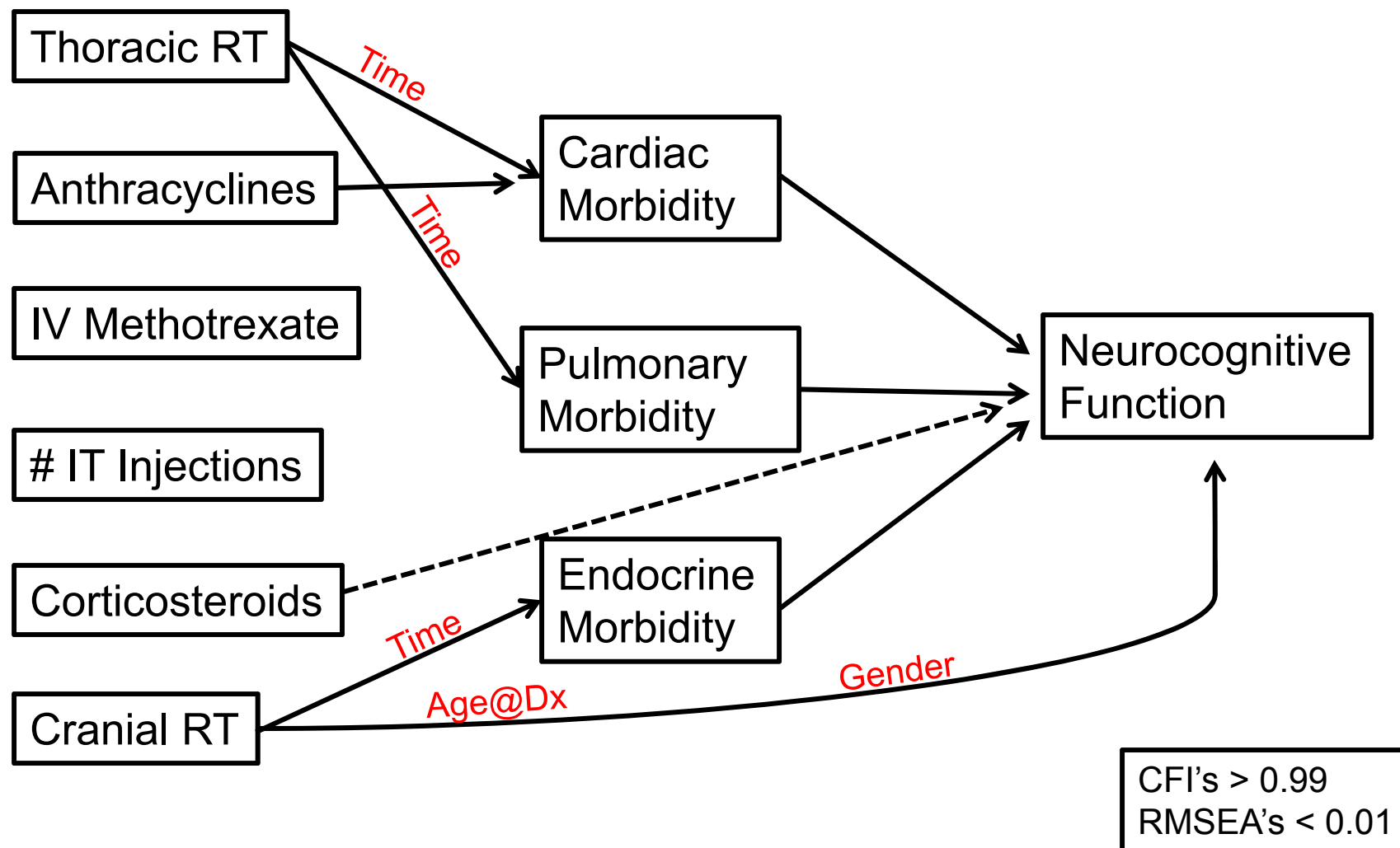
Impact of Chronic Disease on Neurocognitive and Psychosocial Functions

Kevin Krull (St. Jude)

Aims:

- To determine the association between chronic medical illness and neurocognitive function
- To determine the association between chronic medical illness and emotional distress
- To determine the association between chronic medical illness and symptoms of post-traumatic stress

Model of Impairment



Concepts in development AOI's Approved

Sensory-motor problems and associated functional outcomes in survivors of childhood central nervous system (CNS) tumors

Karin Walsh (Children's National Medical Center)

Aims:

- To examine the association between sensory impairments and later psychosocial function in survivors of childhood CNS tumors
- To examine the association between motor impairments and later psychosocial function in survivors of childhood CNS tumors

Chronic alcohol consumption and neurocognitive function in adult survivors of childhood cancer

Tara Brinkman (St. Jude)

Aims:

- To examine the association between chronic alcohol consumption and neurocognitive function
- To examine the association between chronic alcohol consumption and psychological distress

Fatigue reported by childhood cancer survivors and its relationship to health outcomes

Jin-Shei Lai (Northwestern)

Aims:

- To link the FACIT Fatigue scale from CCSS to the PROMIS fatigue item bank to establish a cross-table between these two measurement tools
- To compare fatigue reported in CCSS to that reported by the US general population and adult cancer patients/survivors
- To examine associations between fatigue severity and demographic and treatment-related predictors

Eating Disorder Behaviors in Survivors of Childhood Cancer

Kelly Neale (UCSF)

Aims:

- Determine the incidence of eating disorders in teenage survivors of childhood cancer
- Determine the therapy related risk factors for developing eating disorder behavior

The Impact of Vision Loss Among Childhood Survivors of Central Nervous System Astroglial Tumors

Peter de Blank (Case Western Reserve)

Aims:

- Evaluate psychologic and socioeconomic outcomes among survivors of astroglial tumors with and without vision loss
- Describe differences in psychological and socioeconomic outcomes between survivors with childhood-onset and adult-onset vision loss
- Explore potential factors associated with childhood-onset and adult-onset vision loss among childhood survivors of astrocytoma

Cognitive and academic difficulties in survivors of head/neck rhabdomyosarcomas

Melissa Schapiro (Washington University – St. Louis)

Aims:

- To describe neurocognitive, emotional, and health-related quality of life outcomes in survivors with rhabdomyosarcoma
- To identify diagnostic and treatment variables associated with these outcomes
- To examine associations between neurocognitive, emotional and health-related quality of life outcomes in survivors and social outcomes.

Sleep and Fatigue in Survivors of Pediatric CNS tumors

Peter Manley (Dana Farber)

Aim:

- To determine whether an internet based sleep program improves sleep quality in patients with CNS tumors.

High Priority Proposals for Expansion Cohort

Child Behavior Problems

Table 4. Risk of Behavioral and Social Difficulties: Comparison of Survivors and Siblings

Variable	Depression/Anxiety			Headstrong			Attention Deficit			Peer Conflict/Social Withdrawal			Antisocial			Social Competence		
	%	RR*	99% CI	%	RR*	99% CI	%	RR*	99% CI	%	RR*	99% CI	%	RR*	99% CI	%	RR*	99% CI
Siblings (referent)	10.9		1.0	10.0		1.0	13.1		1.0	10.8		1.0	12.6		1.0	15.3		1.0
Survivors	17.7	1.5	1.1 to 2.1	14.6	1.3	1.0 to 1.8	20.6	1.4	1.1 to 1.9	14.4	1.2	0.9 to 1.6	22.8	1.7	1.3 to 2.2	19.8	1.3	1.0 to 1.6
Cancer type																		
Leukemia	18.2	1.6	1.2 to 2.2	14.8	1.4	1.0 to 1.9	22.1	1.5	1.2 to 2.0	14.6	1.2	0.9 to 1.7	23.4	1.7	1.3 to 2.3	21.5	1.4	1.1 to 1.8
CNS tumors	22.1	2.0	1.4 to 2.8	15.4	1.5	0.9 to 2.2	24.7	1.8	1.2 to 2.5	14.1	1.2	0.8 to 1.9	34.6	2.6	1.9 to 3.6	29.8	1.9	1.4 to 2.6
HD	15.4	1.3	0.5 to 3.6	17.9	1.5	0.6 to 3.8	20.5	1.3	0.6 to 3.0	20.5	1.5	0.6 to 3.4	12.8	0.9	0.3 to 2.7	15.4	1.1	0.4 to 2.8
NHL	18.2	1.6	0.9 to 2.8	14.4	1.3	0.7 to 2.4	19.7	1.3	0.8 to 2.3	15.2	1.2	0.6 to 2.3	18.9	1.4	0.9 to 2.4	21.2	1.4	0.9 to 2.3
Kidney tumors	14.3	1.2	0.8 to 1.9	14.6	1.3	0.9 to 2.0	18.1	1.3	0.9 to 1.8	14.3	1.2	0.8 to 1.7	17.3	1.3	0.9 to 1.8	13.7	0.9	0.6 to 1.3
Neuroblastoma	17.3	1.5	1.1 to 2.3	15.4	1.4	0.9 to 2.2	20.2	1.4	1.0 to 2.0	15.7	1.4	0.9 to 2.1	22.0	1.6	1.1 to 2.3	14.4	0.9	0.6 to 1.4
Soft tissue sarcoma	15.5	1.3	0.8 to 2.2	9.5	0.9	0.5 to 1.6	12.5	0.9	0.5 to 1.5	10.5	0.9	0.5 to 1.6	17.5	1.3	0.8 to 2.1	14.5	0.9	0.6 to 1.5
Bone tumors	9.7	0.8	0.2 to 3.4	12.9	1.2	0.4 to 4.2	9.7	0.7	0.2 to 2.9	9.7	0.9	0.2 to 3.5	6.5	0.5	0.1 to 2.8	19.4	1.3	0.5 to 3.4

Social and behavioral phenotypes of adolescent survivors of childhood cancer

Tara Brinkman (St. Jude)

Aims:

- To identify social and behavioral phenotypes through symptom patterns on BPI
- To investigate the association between demographic and treatment characteristics and phenotypes
- To compare phenotypes in the expansion cohort to the original cohort

Exploring latent clusters of survivors using the BSI-18: A Childhood Cancer Survivor Study

Norma D'Agostino and Kim Edelstein (Princess Margaret Cancer Center)

Aims:

- To identify latent clusters of survivors based on the three subscale scores (anxiety, depression, somatization) of the BSI-18
- To compare the patterns of the latent BSI clusters observed in the expanded cohort to the original cohort and siblings
- To identify treatment, disease and demographic predictors of latent BSI clusters in the expanded cohort